

Request for Reconsideration After Final Rejection  
Serial No. 10/698,934  
By: I. TAKAHASHI et al.  
Attorney Docket No. 032044

**REMARKS**

Claims 1-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over **Fujihira et al.** (US 2002/0128344) in view of **Hird et al.** (USP 5,759,569), **Gagliani et al.** (USP 6,353,021) and **Ohsawa et al.** (USP 6,207,235). This rejection is respectfully traversed.

As in the previous Office Action, the Examiner argues that it would have been obvious to incorporate the ultraviolet stabilizers from any of **Hird**, **Gagliani**, or **Ohsawa** in the composition of **Fujihira** to stabilize the molded product against degradation by ultraviolet light, thereby imparting stability of color and mechanical properties. In the previous Office Action, the Examiner used **Hird** to illustrate the general concept of using an adjuvant which is an ultraviolet stabilizer. In response, applicants argued that **Hird** does not disclose any of the specific members of the Markush group in claim 1. In the pending Office Action, the Examiner states:

Applicants' observation that "Hird does not disclose any member of the Markush groups of component (c) of instant claim 1" cannot be agreed with because Hird does mention Tinuvin 765 in col. 10, line 27, which according to the instant specification, page 22, is a benzotriazole based compound.

While it is true that **Hird** discloses the use of Tinuvin 765, Tinuvin is not actually mentioned in the specification. The specification at page 22 instead refers to Tinuvin 234, Tinuvin 320, Tinuvin 326, Tinuvin 327, Tinuvin 328, and Tinuvin P.

Column 10 of **Hird et al.** clearly shows that Tinuvin 765, a hindered amine light stabilizer (HALS), corresponds to bis-(1,2,2,5,5-pentamethylpiperidinyl)sebacate. It is apparent

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to a person skilled in the art that this compound has a structure in which 1,2,2,5,5-pentamethylpiperidine is bonded to each of the two carboxyl groups of sebacic acid via an ester bond. Therefore, this compound is not a benzotriazole-based compound at all, since this compound has no benzotriazole ring.

According to the *McGraw-Hill Dictionary of Scientific and Technical Terms*, benzotriazole has a structure of C<sub>6</sub>H<sub>5</sub>N<sub>3</sub> and hydroxylamine has a structure of NH<sub>2</sub>OH. According to Dictionary.com, triazine is “any of three isomeric compounds, C<sub>3</sub>H<sub>3</sub>N<sub>3</sub>, each having three carbon and three nitrogen atoms in a six-membered ring.”

The product specification for Tinuvin 765 from the manufacturer, Ciba, is attached hereto. The shown molecular structure clearly does not contain a benzotriazole, triazine, or hydroxylamine. Thus, **Hird** does not provide the teachings on which the Examiner relies.

Therefore, **Hird et al.** does not disclose or suggest the use of a benzotriazole-based compound, even though the above-mentioned bis-(1,2,2,5,5-pentamethylpiperidinyl)sebacate is sold under the trade name “Tinuvin” under which each of the benzotriazole-based compounds mentioned at page 22 of the present specification is also sold.

Further, at column 10, lines 30 to 32 of **Hird et al.**, there is description reading:

“Surprisingly, it has been found that the inclusion of these antioxidants can in some cases promote the biodegradability of the polymers.”

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This description clearly shows that the invention of **Hird et al.** is far from the effect of the present invention which is intended to control the biodegradability of biodegradable plastic (A) by the use of compounds (B) and (C) in combination to improve the resistance to hydrolysis.

That is, **Hird et al.** contains a description to be regarded as an inhibitory factor for the combination of **Fujihara et al.** with **Hird et al.**

As the Examiner acknowledges, **Fujihara** contains no disclosure of benzotriazole-, triazine- or hydroxylamine-based compounds, or ultraviolet stabilizers generally. According to the specification of the present invention, one of these compounds in conjunction with the carbodiimide compound improves hydrolysis resistance. See page 5, line 19 to page 6, line 2 of the specification.

As stated in the prior response, **Fujihara** does not suggest a need for another compound in addition to carbodiimide to improve hydrolysis resistance. Paragraph 22 of **Fujihara** discloses:

It is preferred that the method for improving elastic modulus of the present invention is applied to a biodegradable resin material which contains an additive for suppressing hydrolysis, and, as the additive a carbodiimide compound is preferred.

There is no suggestion or motivation in **Fujihara** to include an additional compound of any kind to improve hydrolysis resistance. It is also noted that the Examiner believes there is a motivation to incorporate stabilizers from the other references not for improving hydrolysis resistance, but for imparting stability against degradation by ultraviolet rays. The ultraviolet

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absorbers used in the present application function not only to absorb ultraviolet rays, but when used in conjunction with carbodiimide compounds, have a synergistic effect which provides a greater hydrolysis resistance as well.

Furthermore, while **Ohsawa** discloses the use of triazine, it also discloses negative effects of the use of benzotriazole (column 10, lines 50-62). **Gagliani** discloses the use of benzatriazoles, but only for the purpose of protection from color degradation as a result of light and/or heat. **Gagliani** has no disclosure of improved hydrolysis resistance. Thus, for at least the above reasons, one having ordinary skill in the art *at the time of invention* would not have been motivated to combine these references. The combination of references cited by the Examiner would be, at most, the result of “impermissible hindsight.” According to MPEP § 2143.01, there must be a suggestion in the prior art as to the desirability of the combination in order for *prima facie* obviousness to be established.

The Examiner also rejects applicants’ assertion of “unexpected results” in the specification. From Tables 1-3 in the specification, it is clear that the addition of an ultraviolet absorber such as those listed in the Markush group of part (C) of claim 1 results in far greater hydrolysis and weather resistance ratios. The data shows that those Examples having an ultraviolet absorber have ratios sometimes in excess of double those without an ultraviolet absorber.

From Table 3 of the present specification, it is understood that a conventional benzophenone-based ultraviolet absorber does not improve, even when used in combination with

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carbodiimide compound (B), the resistance to hydrolysis as compound (C) used in the present invention does (see Examples 12 and 13 in comparison with Comparative Example 11). This means that an ultraviolet absorber (stabilizer) in combination with carbodiimide compound (B) does not always improve the resistance to hydrolysis. Rather, Comparative Example 11 is intended to show this fact.

In other words, some of compounds which can be used as compound (C) (specifically, benzotriazole- and triazine-based compounds) are accidentally known as conventional ultraviolet absorbers (stabilizers). In fact, salicylate-, benzophenone- and cyanoacrylate-based compounds as conventional ultraviolet absorbers or metal- or hindered amine-based compounds as conventional ultraviolet stabilizers are not included in compound (C).

Accordingly, it is respectfully submitted that the combination of references fails to teach or suggest the claimed invention. Furthermore, even if the references could have been combined as asserted by the Examiner, the references fail to suggest the unexpected results associated with the claimed invention. Favorable reconsideration of the rejection is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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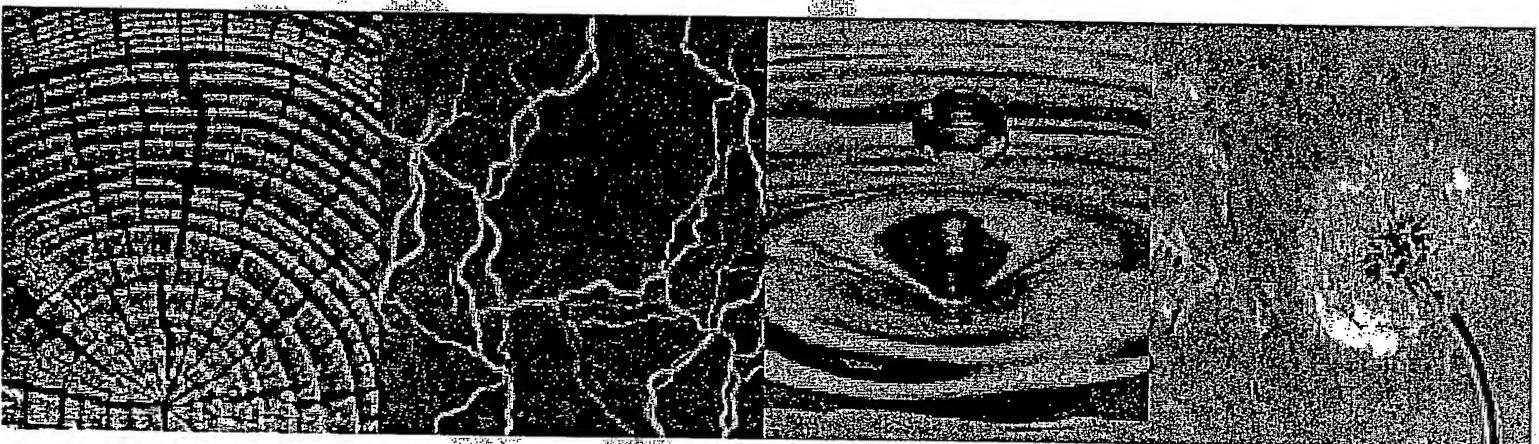
Attachment: Product Description of Tinuvin 765  
Definitions of benzotriazole, triazine and hydroxylamine

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crystalline acid; synthesized by heating benzil with alcohol and potassium hydroxide; used in organic synthesis. ( 'ben'zil'ik 'as'ad )

**benzimidazole** [ORG CHEM]  $C_7H_6N_2$  Colorless crystals; melting point 170°C; slightly soluble in water, soluble in ethanol; used in organic synthesis. ( 'ben'zé'mid'ə zōl )

**benzil** See pétroletin benzil. ( 'ben'zēl )

**benzine** See petroleum benzine. ( 'ben'zēn )

**berizoate** [ORG CHEM] A salt or ester of benzoic acid, formed by replacing the acidic hydrogen of the carboxyl group with a metal or organic radical. ( 'beh'zā,wāt )

**berizocaline** See ethyl-*para*-aminobenzoate. ( 'ben'zō,kā'nē )

**benzdiazepine** [MED] A group of tranquilizers that are used to combat anxiety and convulsions. ( 'ben'zō,dī'zē-pēn )

**benzdihydroprone** [ORG CHEM]  $C_7H_8O_2$  A white to light yellow, oily liquid having a sweet odor; soluble in alcohol, chloroform, and ether; used in perfumery. ( 'ben'zō,dī,hī'drō,pī,rōn )

**benzoic acid** [ORG CHEM]  $C_6H_5COOH$  An aromatic carboxylic acid that melts at 122.4°C, boils at 250°C, and is slightly soluble in water and relatively soluble in alcohol and ether; derivatives are valuable in industry, commerce, and medicine. ( 'ben'zō'ik 'as'ad )

**benzoic anhydride** [ORG CHEM]  $(C_6H_5CO)_2O$  An acid anhydride that melts at 42°C, boils at 360°C, and crystallizes in colorless prisms; used in synthesis of a variety of organic chemicals, including some dyes. ( 'ben'zō'ik 'an'hī,dīd' )

**benzoin** [MATER] A balsamic resin obtained from trees of the genus *Styrax*; used as an expectorant, as an inhalant in respiratory tract inflammations, and as an antiseptic. Also known as benzoin gum; benzoinum; gum benzoin. [ORG CHEM]  $C_{14}H_{12}O_2$  An optically active compound; white or yellowish crystals, melting point 137°C; soluble in acetone, slightly soluble in water; used in organic synthesis. ( 'ben'zō,wān )

**α-benzoin oxime** [ORG CHEM]  $C_8H_7CH(OH)C(NOH)C_6H_5$  Prisms crystallized from benzene; melting point 151–152°C; soluble in alcohol and in aqueous ammonium hydroxide solution; used in the detection and determination of copper, molybdenum, and tungsten. ( 'al-fā'ben'zō,wān'ōk,sēm )

**benzol** See benzene. ( 'ben'zōl )

**benzol-acetone process** [CHEM ENG] A solvent dewaxing process in which a mixture of the solvent and oil containing wax is cooled until the wax solidifies and is then removed by filtration. ( 'ben'zōl'ās'ə,tōn,pri's-ōs )

**benzoline** See normal benzine. ( 'ben'zō,lēn )

**benzomate** [ORG CHEM]  $C_{18}H_{18}O_3N$  A white solid that melts at 71.5–73°C; used as a wettable powder as a miticide. ( 'ben'zō,māt )

**benzonitrile** [ORG CHEM]  $C_6H_5CN$  A colorless liquid with an almond odor; made by heating benzoic acid with lead thiocyanate and used in the synthesis of organic chemicals. Also known as phenyl cyanide. ( 'ben'zō'nī-trēl )

**benzophenone** [ORG CHEM]  $C_6H_5COC_6H_5$  A diphenyl ketone; boiling point 305.9°C, occurring in four polymorphic forms ( $\alpha$ ,  $\beta$ ,  $\gamma$ , and  $\delta$ ) each with different melting point; used as a constituent of synthetic perfumes and as a chemical intermediate. Also known as diphenyl ketone; phenyl ketone. ( 'ben'zō-fē'nōn )

**benzopyrene** [ORG CHEM]  $C_{20}H_{12}$  A five-ring aromatic hydrocarbon found in coal tar, in cigarette smoke, and as a product of incomplete combustion; yellow crystals with a melting point of 179°C; soluble in benzene, toluene, and xylene. ( 'ben'zō,pī,rēn )

**1,2-benzopyrone** See coumarin. ( 'wān'tū'ben'zō,pī,rōn )

**2,3-benzopyrrole** See indole. ( 'yü'thī'ben'zō,pī,rōl )

**5,6-benzoquinoline** [ORG CHEM]  $C_{13}H_9N$  Crystals which are soluble in dilute acids, alcohol, ether, or benzene; melting point is 93°C; used as a reagent for the determination of cadmium. ( 'fī'siks'ben'zō'kwīn'ēl,ēn )

**benzoquinone** See quinone. ( 'ben'zō,kwē'nōn )

**benzoresorcinol** [ORG CHEM]  $C_{13}H_{10}O_3$  A compound crystallizing as needles from hot-water solution; used in paints and plastics as an ultraviolet light absorber. Also known as resbenzophenone. ( 'ben'zō'rē'sōr'sōl,ōl )

**benzosulfimide** See saccharin. ( 'ben'zō'sōlf'ē,mīd ).

**benzothiazole** [ORG CHEM]  $C_8H_6SCHN$  A thiazole fused to a benzene ring; can be made by ring closure from *o*-amino

## benzyl chloroformate

thiophenols and acid chlorides; derivatives are important industrial products. ( 'ben'zō'lōr'fōrmāt )

**4-benzothienyl-N-methylcarbamate** [ORG CHEM]  $C_{10}H_9NO_2S$  A white powder compound with a melting point of 128°C; used as an insecticide for crop insects. ( 'for'ben'zō'thī'nē,ñl 'ñth'meth'ēl'kar'bā,māt )

**benzothiophuran** See thiaphenethane. ( 'ben'zō'thī'ñr'fāñ,ān )

**1,2,3-benzotriazole** [ORG CHEM]  $C_9H_5N_3$  A compound with melting point 98.5°C; soluble in ethanol; insoluble in water; derivatives are ultraviolet absorbers; used as a chemical intermediate. ( 'wān'tū'thī'ñr'fāñ'zōl )

**benzotrichloride** [ORG CHEM]  $C_6H_5CCl_3$  A colorless to yellow liquid that fumes upon exposure to air; has penetrating odor; insoluble in water, soluble in ethanol and ether; used to make dyes. ( 'ben'zō,tr'fklōr'íd )

**benzotrifluoride** [ORG CHEM] Colorless liquid, boiling point 102.1°C; used for dyes and pharmaceuticals; as solvent and vulcanizing agent, in insecticides. ( 'ben'zō,tr'flūr'íd )

**benzoyl** [ORG CHEM] The radical  $C_6H_5CO^-$  found, for example, in benzoyl chloride. ( 'ben'zō,wāl )

**benzoylation** [ORG CHEM] Introduction of the aryl radical ( $C_6H_5CO$ ) into a molecule. ( 'ben'zō'la'shōn )

**benzoyl chloride** [ORG CHEM]  $C_6H_5COCl$  Colorless liquid whose vapor induces tears; soluble in ether, decomposes in water; used as an intermediate in chemical synthesis. ( 'ben'zō,wāl'klōr'íd )

**benzoyl chloride** 2,4,6-trichlorophenylhydrazone [ORG CHEM]  $C_6H_5CCl_3HC_6H_2Cl_3$  A white to yellow solid with a melting point of 96.5–98°C; insoluble in water; used as an anthelmintic for citrus. ( 'ben'zō,wāl'klōr'íd'ü'fōr'siks,tr'klōr'ë,fēn'el'hī'drāzōn )

**benzoyl peroxide** [ORG CHEM]  $(C_6H_5CO)_2O_2$  A white, crystalline solid; melting point 103–105°C; explodes when heated above 105°C; slightly soluble in water, soluble in organic solvents; used as a bleaching and drying agent and a polymerization catalyst. ( 'ben'zō,wāl'pō'rāk,sid )

**benzoylpropethyl** [ORG CHEM]  $C_8H_7Cl_2NO_3$  An off-white, crystalline compound with a melting point of 72°C; used as a preemergence herbicide for control of wild oats. ( 'ben'zō,wāl'prō,pā'thēl )

**3,4-benzpyrene** [ORG CHEM]  $C_{20}H_{12}$  A polycyclic hydrocarbon; a chemical carcinogen that will cause skin cancer in many species when applied in low dosage. ( 'thīr'fōr,bēn'pī,rēn )

**benzthiazuron** [ORG CHEM]  $C_5H_9N_3SO$  A white powder that decomposes at 287°C; slightly soluble in water; used as a preemergent herbicide for sugarbeets and fodder beet crops. ( 'ben'zthī'ñz-yō,rān )

**benzyl** [ORG CHEM] The radical  $C_6H_5CH_2^-$  found, for example, in benzyl alcohol,  $C_6H_5CH_2OH$ . ( 'ben'zäl' )

**benzyl acetate** [ORG CHEM]  $C_6H_5CH_2OOCCH_3$  A colorless liquid with a flowery odor; used in perfumes and flavorings and as a solvent for plastics and resins, inks, and polishes. Also known as phenylmethyl acetate. ( 'ben'zäl'as'ə,tāt )

**benzylacetone** [ORG CHEM]  $C_6H_5(CH_2)_2COCH_3$  A liquid with a melting point of 233–234°C; used as an attractant to trap melon flies. ( 'ben'zäl'as'ə,tōn' )

**benzyl alcohol** [ORG CHEM]  $C_6H_5CH_2OH$  An alcohol that melts at 15.3°C, boils at 205.8°C, and is soluble in water and readily soluble in alcohol and ether; valued for the esters it forms with acetic, benzoic, and sebacic acids and used in soap, perfume, and flavor industries. Also known as phényle méthanol. ( 'ben'zäl'al'kā,hōl )

**benzylamine** [ORG CHEM]  $C_6H_5CH_2NH_2$  A liquid that is soluble in water, ethanol, and ether; boils at 185°C (770 mmHg) and at 84°C (24 mmHg); it is toxic; used as a chemical intermediate in dye production. Also known as aminotoluene. ( 'ben'zäl'am'ēn )

**benzyl benzoate** [ORG CHEM]  $C_6H_5COOCH_2C_6H_5$  An oily, colorless liquid ester; used as an antispasmodic drug and as a scabicide. ( 'ben'zäl'bēn'zā,wāt )

**benzyl bromide** [ORG CHEM]  $C_6H_5CH_2Br$  A toxic, irritating, corrosive clear liquid with a boiling point of 198–199°C; acts as a lacrimator; soluble in alcohol, benzene, and ether; used to make foaming and frothing agents. ( 'ben'zäl'brom' )

**benzyl chloride** [ORG CHEM]  $C_6H_5CH_2Cl$  A colorless liquid with a pungent odor produced by the chlorination of toluene. ( 'ben'zäl'klōr'íd )

**benzyl chloroformate** [ORG CHEM]  $C_8H_7ClO_2$  An oil

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- from cellulose, used for textile finishes and as a thickener for water-base paints. ( *hī drāk' sē eth' əl'sē yō lōz* )
- 2-hydroxyethylhydrazine** [ORG CHEM]  $\text{HOCH}_2\text{CH}_2\text{NHNH}_2$  A colorless, slightly viscous liquid with a melting point of  $-70^\circ\text{C}$ ; soluble in lower alcohols; used as an abscission agent in fruit. Also known as 2-hydrazinoethanol. ( *hī drāk' sē eth' əl'hī drah' zēn* )
- 3-hydroxyflavone** See flavonol. ( *thre hī drāk' sē fla' vōn* )
- hydroxine** [PHARM]  $\text{C}_2\text{H}_7\text{ClN}_2\text{O}_3$  A tranquilizer, also possessing antiemetic and antihistaminic effects; used as the hydrochloride salt. ( *hī drāk' sē lēn* )
- hydroxyl** See hydroxy. ( *hī drāk' sē l* )
- hydroxylamine** [INORG CHEM]  $\text{NH}_2\text{OH}$  A colorless, crystalline compound produced commercially by acid hydrolysis of nitroparaffins, decomposes on heating, melts at  $33^\circ\text{C}$ , used in organic synthesis and as a reducing agent. ( *hī drāk' sū ə mēn* )
- hydroxylamine hydrochloride** [ORG CHEM]  $(\text{NH}_2\text{OH})\text{Cl}$  A crystalline substance with a melting point of  $151^\circ\text{C}$ ; soluble in glycerol and propylene glycol; used as a reducing agent in photography and in synthetic and analytic chemistry, as an antioxidant in fatty acids and soaps, and as a reagent for enzyme reactivation. ( *hī drāk' sīl' a'mēn hī drāk' klor' id* )
- ortho-hydroxyaniline** [ORG CHEM]  $\text{C}_6\text{H}_4\text{NH}_2\text{OH}$  White crystals that turn brownish upon standing for some time; melts at  $172-173^\circ\text{C}$ , and will sublime upon more heating; soluble in cold water and benzene; used as a dye for hair and furs, and as a dye intermediate. Also known as *ortho*-aminophenol; oxammonium. ( *or' thō hī drāk' sēl' an' i-n* )
- hydroxylapatite** [MINERAL]  $\text{Ca}_5(\text{PO}_4)_3\text{OH}$  A rare form of the apatite group that crystallizes in the hexagonal system. ( *hī drāk' sēl' ap'ə pāt' ī tīt* )
- hydroxylase** [BIOCHEM] Any of several enzymes that catalyze certain hydroxylation reactions involving atomic oxygen. ( *hī drāk' sē lās* )
- hydroxylation reaction** [ORG CHEM] One of several types of reactions used to introduce one or more hydroxyl groups into organic compounds; an oxidation reaction as opposed to hydrolysis. ( *hī drāk' sē lā-shōn rē-ak-shōn* )
- hydroxylherderite** [MINERAL]  $\text{CaBe}(\text{PO}_4)(\text{OH})$  A monoclinic mineral composed of a phosphate and hydroxide of calcium and beryllium; isomorphous with herderite. ( *hī drāk' sēl' har'dērīt* )
- $\beta$ -hydroxynaphthoic acid** [ORG CHEM]  $\text{C}_9\text{H}_8\text{OHC}\text{OOH}$  A yellow solid that is soluble in ether and alcohol and melts at about  $218^\circ\text{C}$ ; used as a dye and a pigment. ( *bād' hī drāk' sē naf' thō' ik' as-od* )
- 4-hydroxy-3-nitrobenzenearsonic acid** [ORG CHEM]  $\text{HOCH}_3(\text{NO}_2)\text{AsO}(\text{OH})_2$  Crystals used as a reagent for zirconium; also used to control enteric infections and to improve growth and feed efficiency in animals. Also known as roxarsone. ( *for hī drāk' sē thre nōt' bēn' zēn īr'sā-nik' as-od* )
- hydroxyproline** [BIOCHEM]  $\text{C}_5\text{H}_9\text{O}_3\text{N}$  An amino acid that is essentially limited to structural proteins of the collagen type. ( *hī drāk' sē prō-lēn* )
- para-hydroxypropiophenone** [PHARM]  $\text{HOCH}_2\text{COC}_6\text{H}_4\text{H}_5$  A crystalline substance with a melting point of  $149^\circ\text{C}$ ; soluble in alcohol and ether; used as an inhibitor of pituitary-gonadotropic hormone. ( *par'ə hī drāk' sē prō-pē'ə fā-nōn* )
- 8-hydroxyquinoline** [ORG CHEM]  $\text{C}_9\text{H}_8\text{NOH}$  White crystals or powder that darken on exposure to light; slightly soluble in water; soluble in benzene, melting at  $73-75^\circ\text{C}$ ; used in preparing fungicides and in the separation of metals by acting as a precipitating agent. Also known as oxine; oxyquinoline; 8-quinolinol. ( *at hī drāk' sē' kwīn' ē-lēn* )
- 8-hydroxyquinoline sulfate** [PHARM]  $\text{C}_{16}\text{H}_{14}\text{N}_2\text{O}_8\text{S}$  A pale yellow, crystalline powder with a melting point of  $175-178^\circ\text{C}$ ; soluble in water; used as an antiseptic, deodorant, and antiperspirant. ( *at hī drāk' sē' kwīn' ē-lēn' sōl' fāt* )
- 5-hydroxytryptamine** See serotonin. ( *fīv hī drāk' sē triptō-mēn* )
- 5-hydroxytryptophan** [BIOCHEM]  $\text{C}_{11}\text{H}_{12}\text{N}_2\text{O}_3$  Minute rods or needlelike crystals; the biological precursor of serotonin. ( *fīv hī drāk' sē triptō-fān* )
- 3-hydroxytyramine hydrobromide** [ORG CHEM]  $(\text{HO})_2\text{C}_6\text{H}_3\text{CH}_2\text{CH}_2\text{NH}_2\text{HBr}$  A source of dopamine for the synthesis of catecholamine analogs. ( *thre hī drāk' sē trō-mēn hī drā'bōmid* )

**hydroxyurea** [PHARM]  $\text{HONHCONH}_2$  Needelike crystals with a melting point of  $133-136^\circ\text{C}$ ; used as an amineopatic agent. Also known as hydroxycarbamide. ( *hī drāk' sē yōō-rē-ə* )

**hydrozinrete** [MINERAL]  $\text{Zn}_2(\text{OH})_5(\text{CO}_3)_2$  A white, gray, or yellowish mineral composed of basic zinc carbonate, occurring as masses or crusts. ( *hī drō-zēn' rēt* )

**Hydrozoa** [INV ZOO] A class of the phylum Cnidaria which includes the fresh-water hydras, the marine hydroids, many small jellyfish, a few corals, and the Portuguese man-of-war. ( *hī dro'zō-ə* )

**Hydrus** [ASTRON] A southern constellation; right ascension 2 hours, declination  $75^\circ\text{S}$ . Also known as Water Snake. ( *hī drōs* )

**hyena** [VERT ZOO] An African carnivore represented by three species of the family Hyenidae that resemble dogs but are more closely related to cats. ( *hī ē-nō* )

**Hyenatace** [PALEOBOT] An order of Devonian plants characterized by small, dichotomously forked leaves borne on whorls. ( *hī ē-nā-tāsē* )

**Hyenatace** [PALEOBOT] See Hyeniopsida. ( *hī ē-nā-tāsē* )

**Hyeniopsida** [PALEOBOT] An extinct class of land plants. ( *hī ē-nē-ap'sō-dā* )

**hyetal coefficient** See pluviofometric coefficient. ( *kō'fī-sī-ēnt* )

**hyetal equator** [CLIMATOL] A line (or transition zone) which encircles the earth (north of the general tropics) and lies between two belts that typify the annual time distribution of rainfall in the lower latitudes of each hemisphere, a form of meteorological equator. ( *hī ad' al' ē-kwā-tōr* )

**hyetal region** [CLIMATOL] A region in which the amount and seasonal variation of rainfall are of a greater magnitude than the annual mean. ( *hī ad' al' rē-jōn* )

**hyetograph** [CLIMATOL] A map or chart displaying annual or areal distribution of precipitation. ( *hī ed' o-grāf* )

**hyetography** [CLIMATOL] The study of the annual variation and geographic distribution of precipitation. ( *hī ed' o-grāf' ī-tō-grāfē* )

**hyetology** [METEOROL] The science which treats of the origin, structure, and various other features of all forms of precipitation. ( *hī ē-tāl' o-jē* )

**Hygiea** [ASTRON] The fourth largest asteroid, diameter of about 260 miles (419 kilometers), mean distance from the sun of 3.14 astronomical units, and C-type surface composition. ( *hī jē' ā* )

**hygiene** [MED] The science that deals with the promotion and practices of good health. ( *hī jēnē* )

**hygristor** [ÉLECTR] A resistor whose resistance varies with humidity, used in some types of recording instruments. ( *hī grīs-tōr* )

**Hygrobiidae** [INV ZOO] The squeaker beetles, a family of coleopteran insects in the suborder Archostemata. ( *hī grō-bē-īdā* )

**hygrodeik** [ENG] A form of psychrometer with two dry-bulb thermometers mounted on opposite sides of a specially designed graph of the psychometric table, so that the intersections of two curves determined by wet- and dry-bulb readings yield the relative humidity and absolute humidity. ( *hī grādēk* )

**hyrogram** [ENG] The record made by a hygrograph. ( *hī grō' grām* )

**hygrograph** [ENG] A recording hygrometer. ( *hī grō' grāf* )

**hygrokinematics** [METEOROL] The descriptive motion of water substances in the atmosphere. ( *hī grō-kī-nā-mēt'iks* )

**hydrolgy** [METEOROL] The study of the water vapor content (humidity) of the atmosphere. ( *hī dōl' ī-jē* )

**hygroma** [MED] A congenital disorder in which a filled cystic cavity is formed from dilated lymphatic vessels. ( *hī grō-mā* )

**hygrometer** [ENG] An instrument for the determination of the amount of moisture in the air, the indication usually being in terms of the percentage which the moisture present bears to the amount of moisture that could be present without condensation taking place. ( *hī grō-mēt'ər* )




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tria·zine [Pronunciation Key](#) (trī'ə-zēn', trī-ăz'ēn')  
*n.*

1. Any of three isomeric compounds, C<sub>3</sub>H<sub>3</sub>N<sub>3</sub>, each having three carbon and three nitrogen atoms in a six-membered ring.
2. A compound derived from one of these isomers.

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**triazine**

*n : any of three isomeric compounds having three carbon and three nitrogen atoms in a six-membered ring*

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**triazine**

triazine: in CancerWEB's On-line Medical Dictionary

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	ENGINEERING PLASTICS	STYRENICS	PVC	POLYURETHANES
LIGHT STABILITY (HALS)				
TINUVIN 122	HP	○	○	○
TINUVIN 94	EDP, EDI	○	○	○
TINUVIN 2020	EDL	○	○	○
TINUVIN 321	EDP	○	○	○
TINUVIN 124	EDP	○	○	○
TINUVIN 125	EDP	○	○	○
TINUVIN 765	EDP	○	○	○
TINUVIN 770	EDP	○	○	○
TINUVIN 770E	EDP	○	○	○
LIGHT STABILITY (UV ABSORPTION)				
TINUVIN 122	HP	○	○	○
TINUVIN 124	HP	○	○	○
TINUVIN 215	HP	○	○	○
TINUVIN 216	HP	○	○	○
TINUVIN 222	HP	○	○	○
TINUVIN 226	HP	○	○	○
TINUVIN 228	HP	○	○	○
TINUVIN 230	HP	○	○	○
TINUVIN 300	EDP	○	○	○
TINUVIN 300C	EDP	○	○	○
TINUVIN 311	EDP	○	○	○
TINUVIN 322	HP	○	○	○
TINUVIN 324	HP	○	○	○
LIGHT STABILITY (BLENDS)				
TINUVIN C35	HP	○	○	●
TINUVIN XT 30	HP	○	○	●
TINUVIN B75	HP	○	○	●
TINUVIN B33	HP	○	○	●
TINUVIN PB33	HP	○	○	●
TINUVIN PB50/33	HP	○	○	●

*Light Stability (HALS)*

**TINUVIN 622**

CAS No. 63-447-7 / 0  
Molecular Wt (g/mol): 1100-1000



TINUVIN 122  
CAS No. 63-447-7 / 0  
Molecular Wt (g/mol): 685

**TINUVIN 770**

CAS No. 52-29-0 / 9  
Molecular Wt (g/mol): 881

**TINUVIN 765**

CAS No. 1356-26-7  
Molecular Wt (g/mol): 900

**TINUVIN 770E**

CAS No. 1297-57-6  
Molecular Wt (g/mol): 737